



孕龍科技股份有限公司
ZeroPlus Technology Co., Ltd.

SPECIFICATION

MODEL: B09006-LAP-SD2.0/SDIO-M

PART NO: _____

VERSION: V1.63

Approver		Check	Design
GM	PM		

Customer Confirm

*Please fax the file to ZeroPlus Technology after signing.

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1 Software Download

Please download the software as the following steps:

Remark: We won't have additional notice for you, when there is any modification of the module specification. If there is some unconformity caused by the module version upgrade, users should take the module software as the standard.

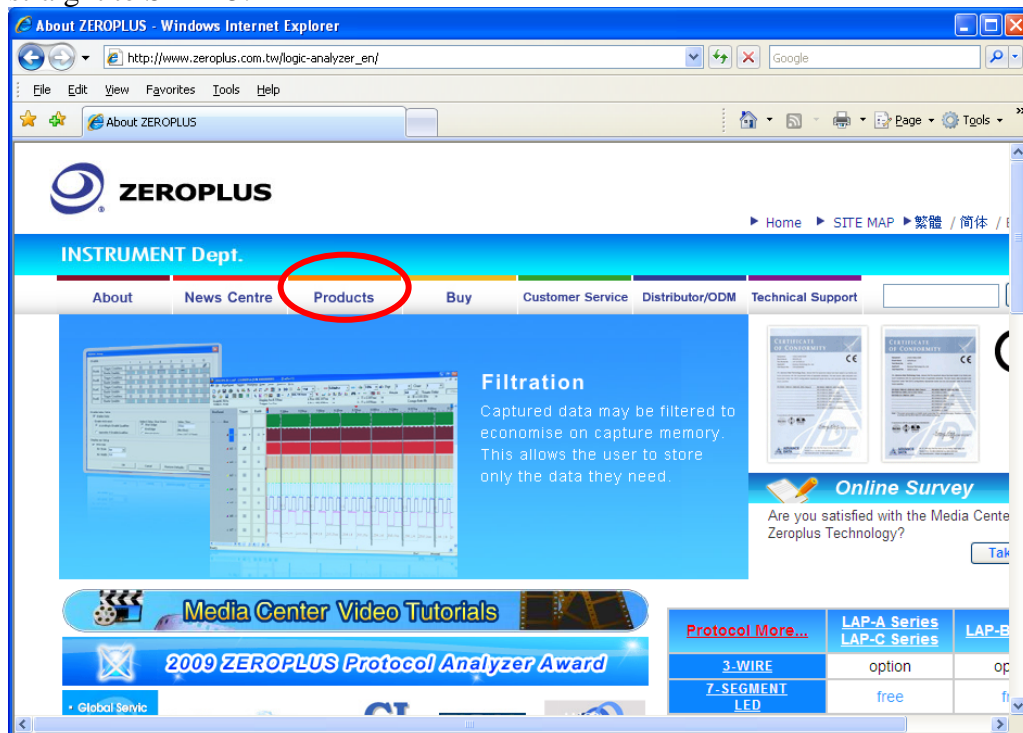
STEP 1. Visit the website of ZeroPlus: <http://www.zeroplus.com.tw>.

STEP 2. Click the **English** in the Instrument Division part on the Homepage.

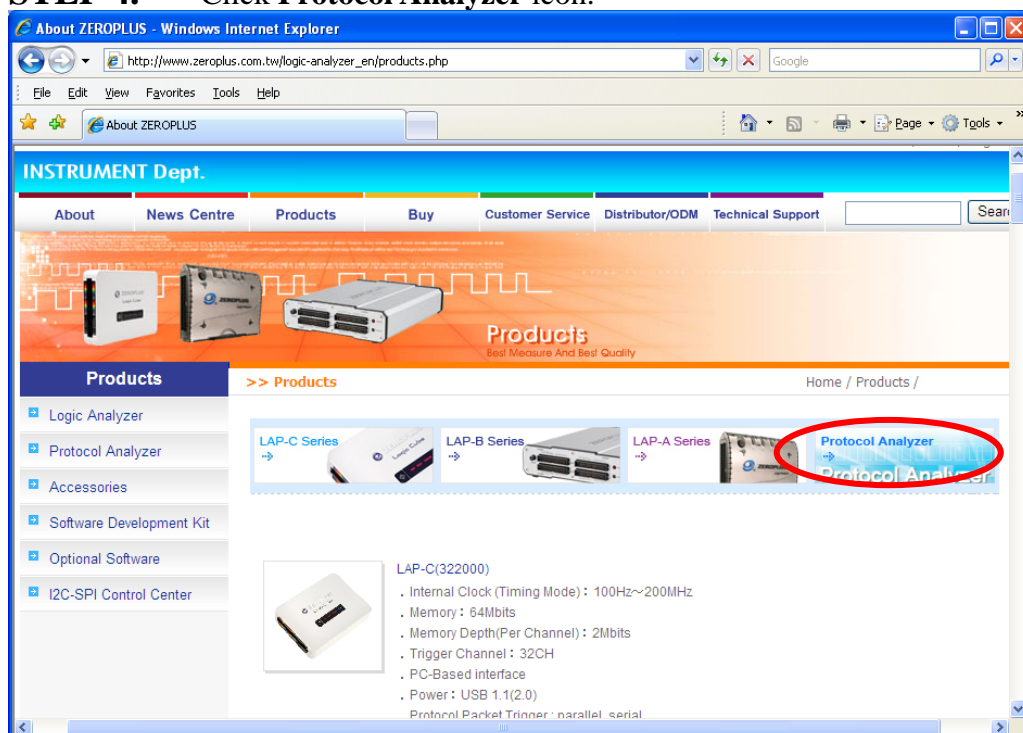




STEP 3. Click **Products** menu or select **Protocol Analyzer** item from its pull-down menu to go straight to STEP 5.

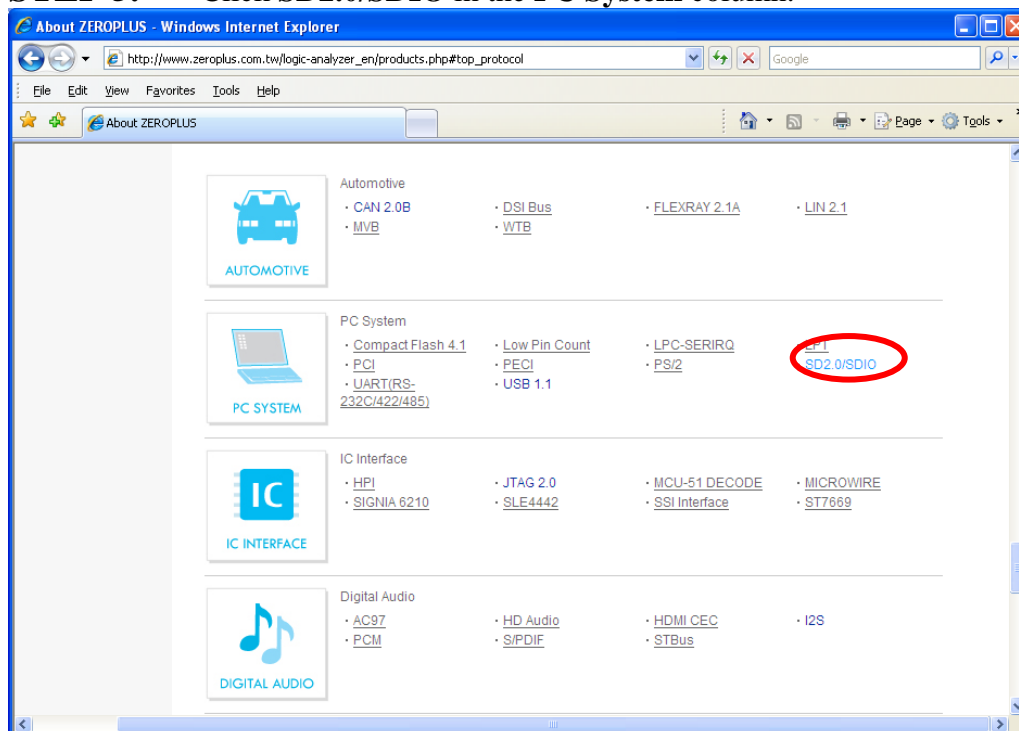


STEP 4. Click **Protocol Analyzer** icon.

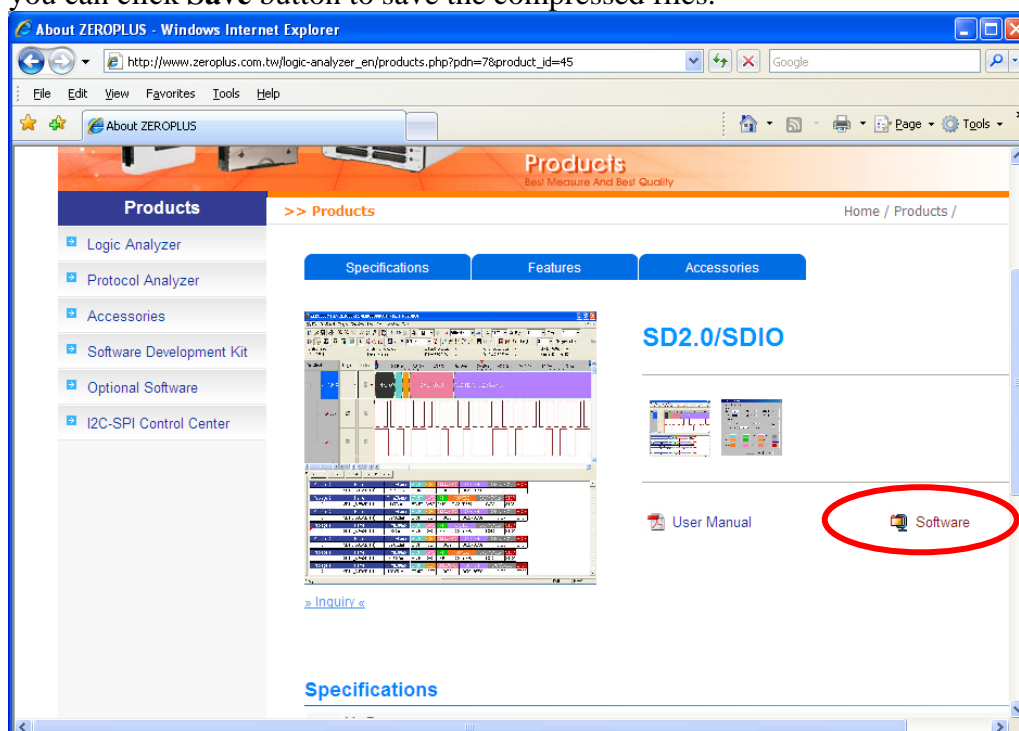




STEP 5. Click **SD2.0/SDIO** in the **PC System** column.



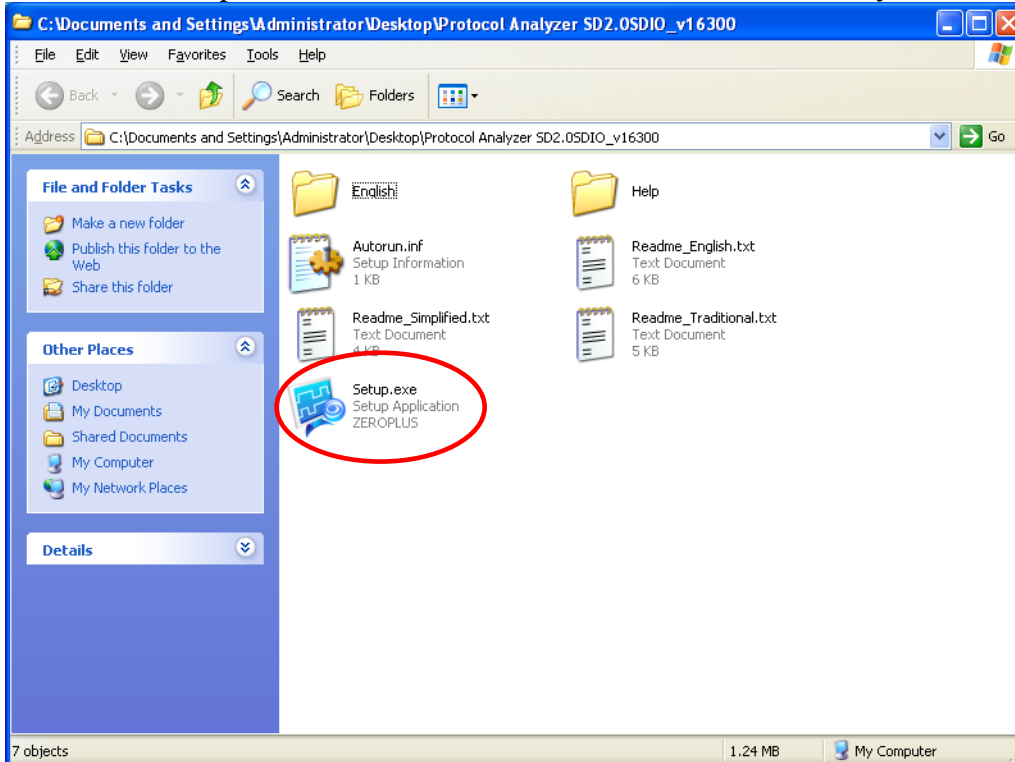
STEP 6. Click **Software** in the Products page. When the File Download dialog box appears, you can click **Save** button to save the compressed files.



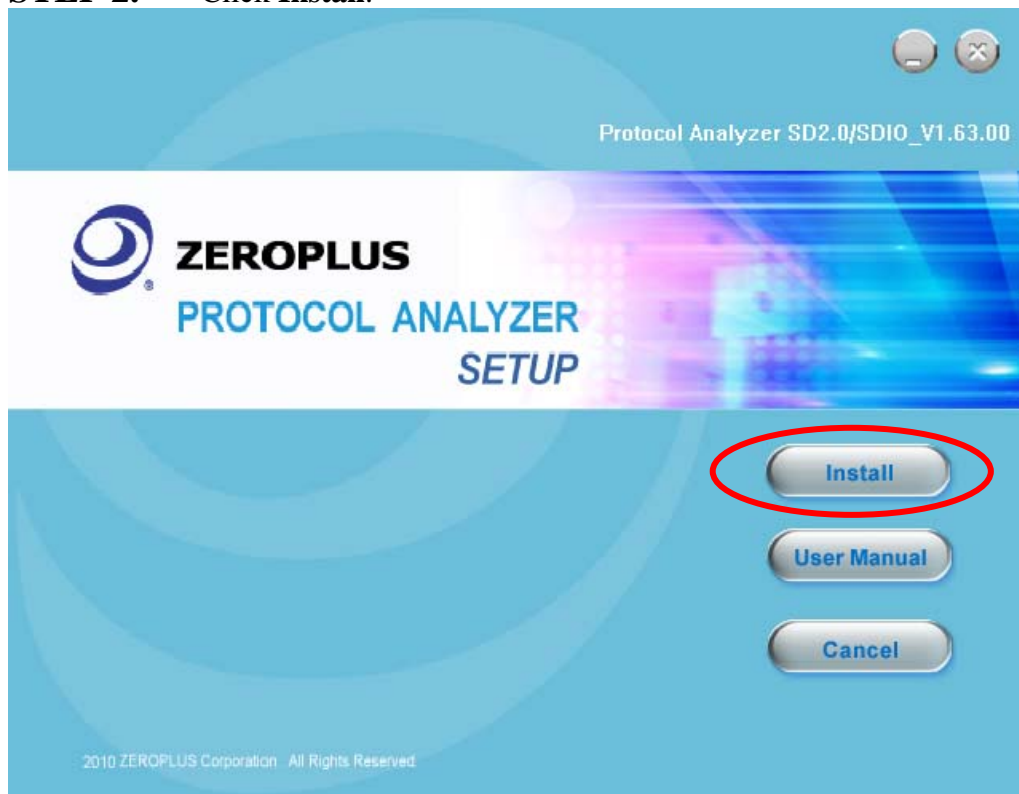


2 Software Installation

STEP 1. Open the downloaded folder to install **Protocol Analyzer SD2.0/SDIO**.

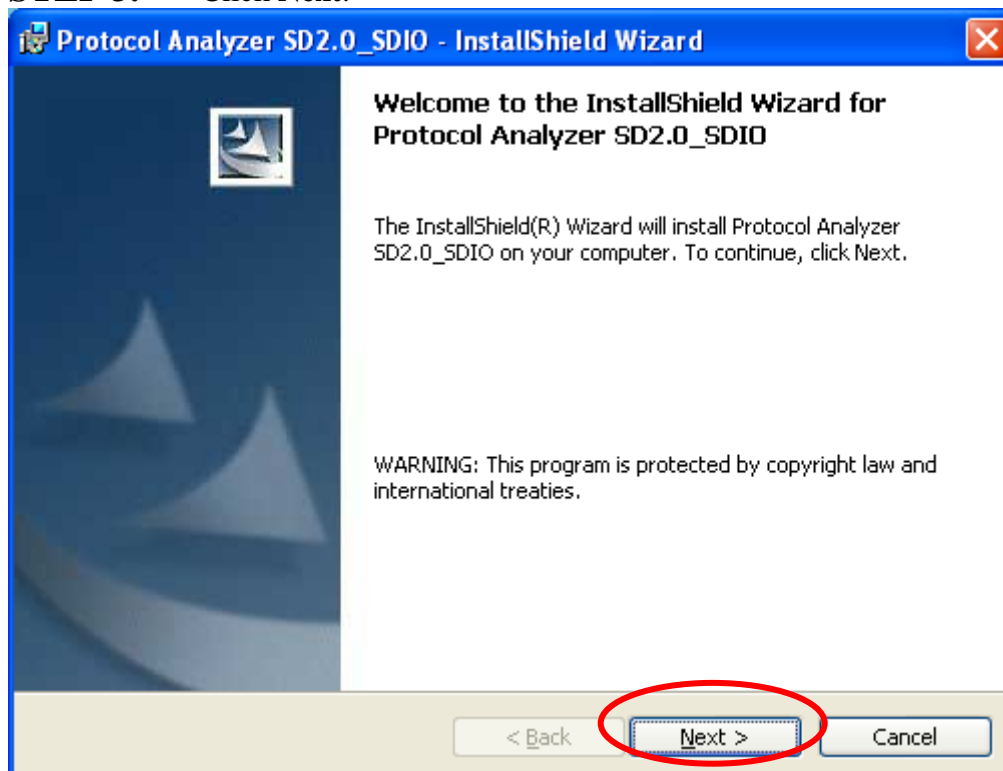


STEP 2. Click **Install**.

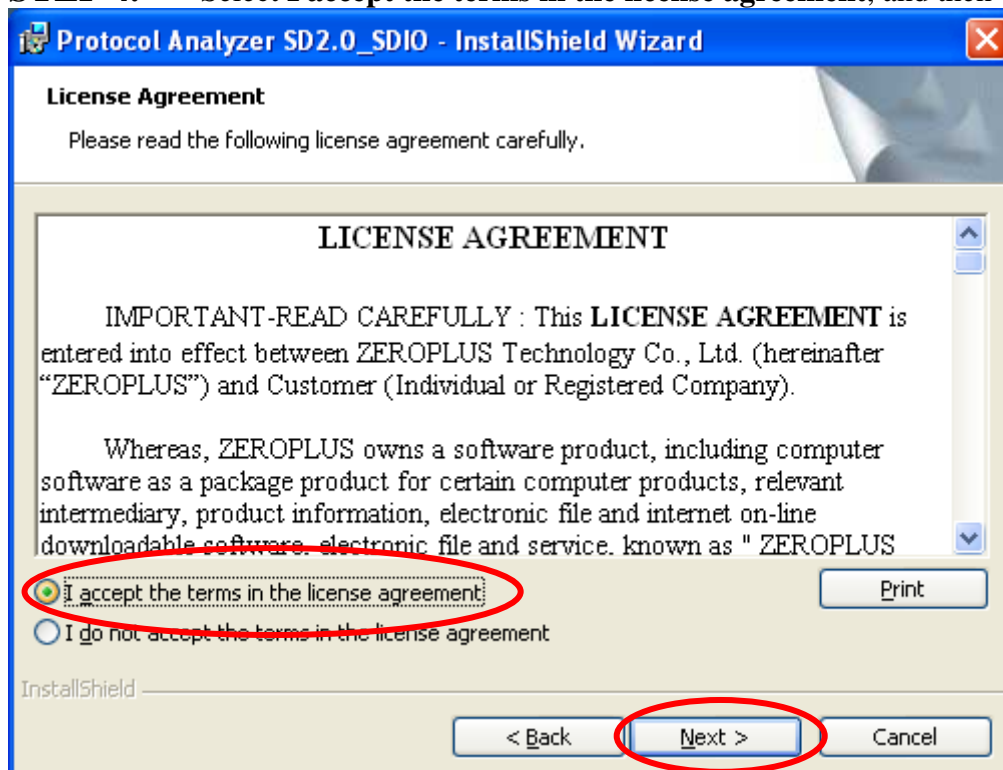




STEP 3. Click **Next**.



STEP 4. Select **I accept the terms in the license agreement**, and then click **Next**.





STEP 5. Fill in users' information, and then click **Next**.

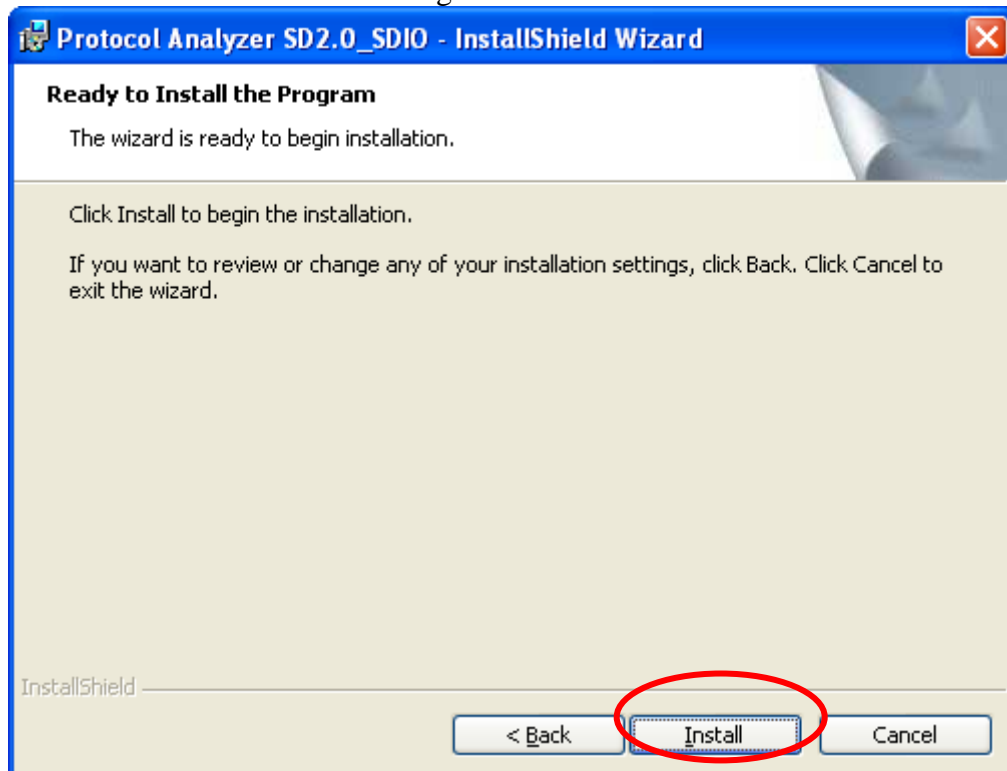
The screenshot shows the 'Customer Information' screen of the 'Protocol Analyzer SD2.0_SDIO - InstallShield Wizard'. The title bar is blue with a close button. The main area has a light beige background. At the top, it says 'Customer Information' and 'Please enter your information.' Below this are two text input fields: 'User Name:' with 'Microsoft' entered, and 'Organization:' with 'User' entered. Further down, it says 'Install this application for:' followed by two radio button options: 'Anyone who uses this computer (all users)' (which is selected) and 'Only for me (Microsoft)'. At the bottom, there is a progress bar labeled 'InstallShield' and three buttons: '< Back', 'Next >' (which is circled in red), and 'Cancel'.

STEP 6. Select **Complete** option and then click **Next**.

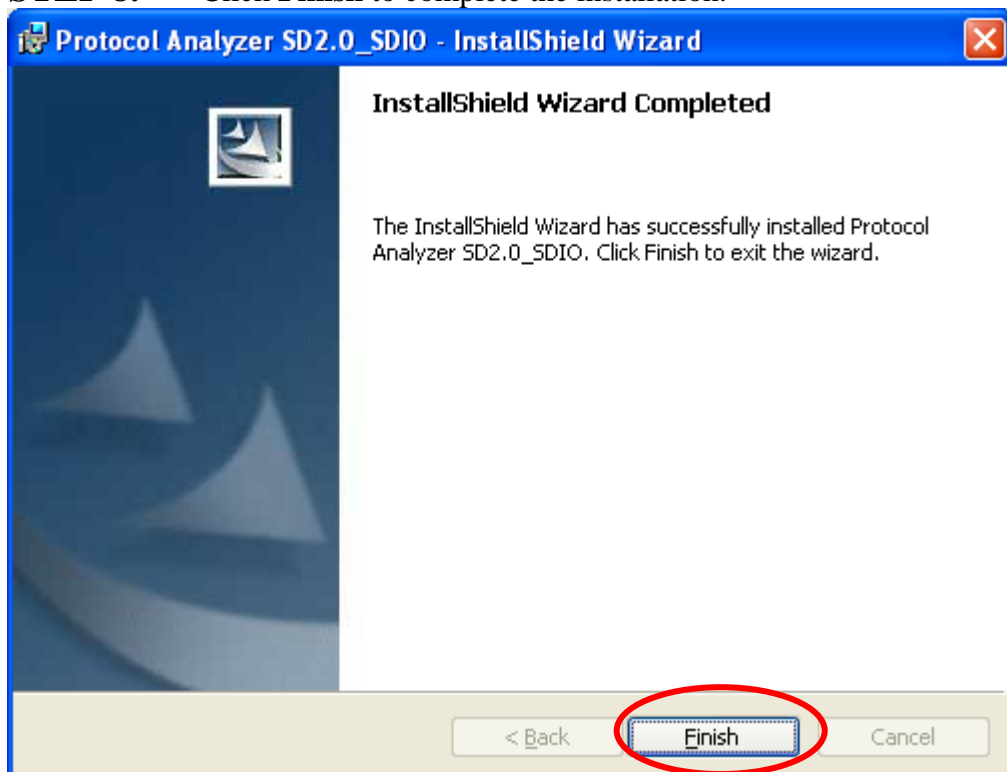
The screenshot shows the 'Setup Type' screen of the 'Protocol Analyzer SD2.0_SDIO - InstallShield Wizard'. The title bar is blue with a close button. The main area has a light beige background. At the top, it says 'Setup Type' and 'Choose the setup type that best suits your needs.' Below this, it says 'Please select a setup type.' There are two radio button options: 'Complete' (which is selected) and 'Custom'. Each option has a small icon and a description. The 'Complete' option's description is 'All program features will be installed. (Requires the most disk space.)'. The 'Custom' option's description is 'Choose which program features you want installed and where they will be installed. Recommended for advanced users.' At the bottom, there is a progress bar labeled 'InstallShield' and three buttons: '< Back', 'Next >' (which is circled in red), and 'Cancel'.



STEP 7. Click **Install** to begin the installation.



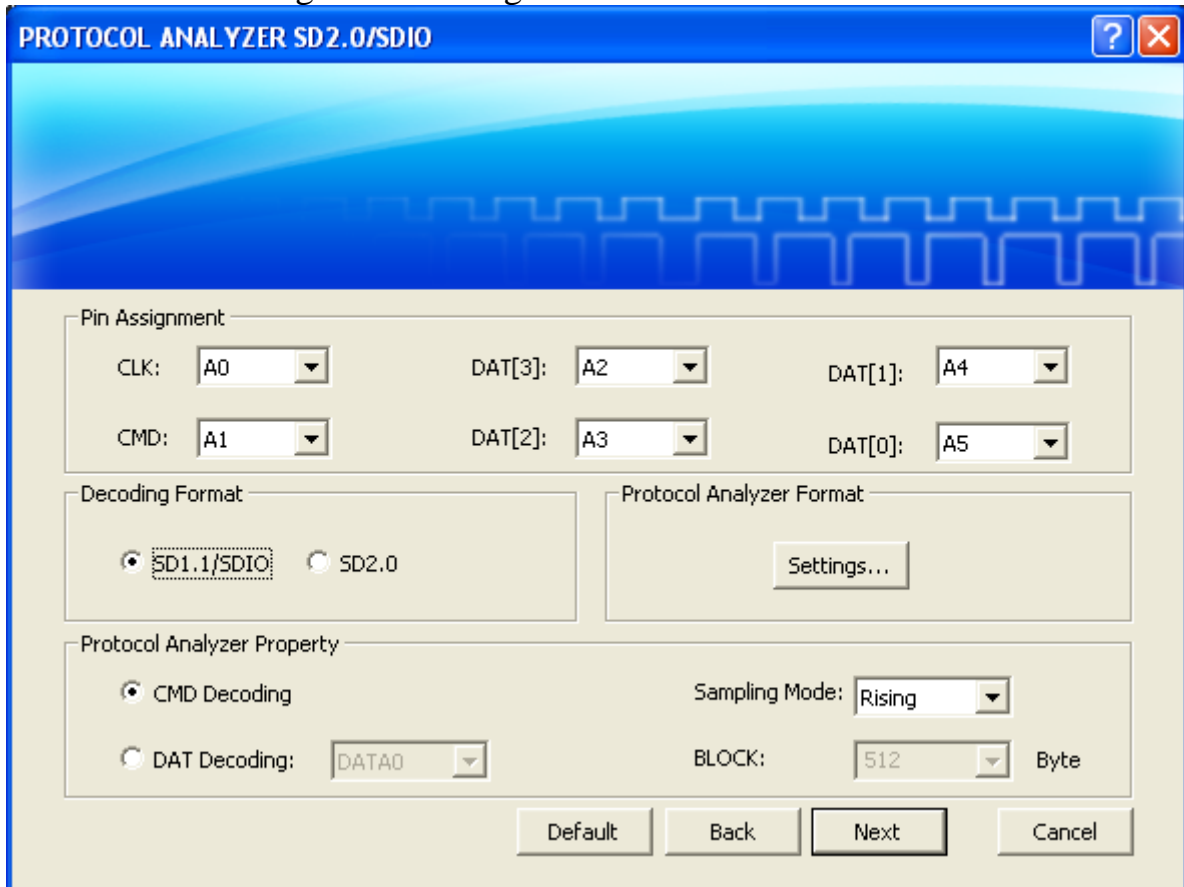
STEP 8. Click **Finish** to complete the installation.



3 User Interface

Please refer to the below images to select options of setting **SD2.0/SDIO** Module.

SD2.0/SDIO Configuration dialog box



Pin Assignment:

The CLK is the Clock channel, the CMD is the Command channel and the DAT [0] ~ [3] are the Data channels

Decoding Format:

There are two modes (SD 1.1/SDIO and SD 2.0) for selecting.

Protocol Analyzer Property:

CMD Decoding: It is used to decode the Command and Response only.

DAT Decoding: It is used to decode the transmitted data only. Two options can be chosen, DATA0 or DATA0~3.

BLOCK: Users can vary the BLOCK Size on SD2.0/SDIO card. The options are 512 Byte, 1024 Byte and 2048 Byte. And the BLOCK Size can be entered directly in the range from 1 Byte to 32767 Byte.

Sampling Mode: Users can set the CLK sampling mode to Rising or Falling.

Protocol Analyzer Format:

Press the **Settings** button to open the Protocol Analyzer Format dialog box. The Color of each Item



can be varied as the users' requirements. The Items (Data, CMD X, CRC, RN, Content and Address) can be set as Binary, Decimal, Hexadecimal, ASCII or Default. And the Data Formats of these Items (Data, CMD X, CRC, RN, Content and Address) in the Waveform Display Area and Packet List are controlled by the Protocol Analyzer. The default Data Formats are controlled by the main program and the Data Formats of these items (Data, CMD X, CRC, RN, Content and Address) are the Default.

The dialog box titled "Protocol Analyzer Format" contains two columns of configuration options. Each option consists of an item name, a color selection box, and a data format dropdown menu. The items are arranged in two columns. At the bottom right, there are three buttons: "Ok", "Cancel", and "Default".

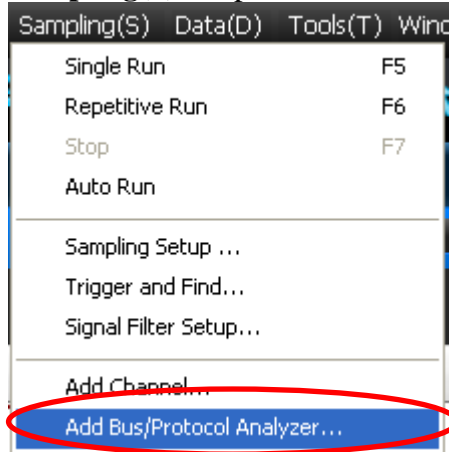
Item	Color	Data Format	Item	Color	Data Format
Start		Default	Host		Default
Data		Default	Content		Default
CMD X		Default	Address		Default
CRC		Default	Card		Default
Busy		Default	CRC Status		Default
RN		Default	Stop		Default

Ok Cancel Default

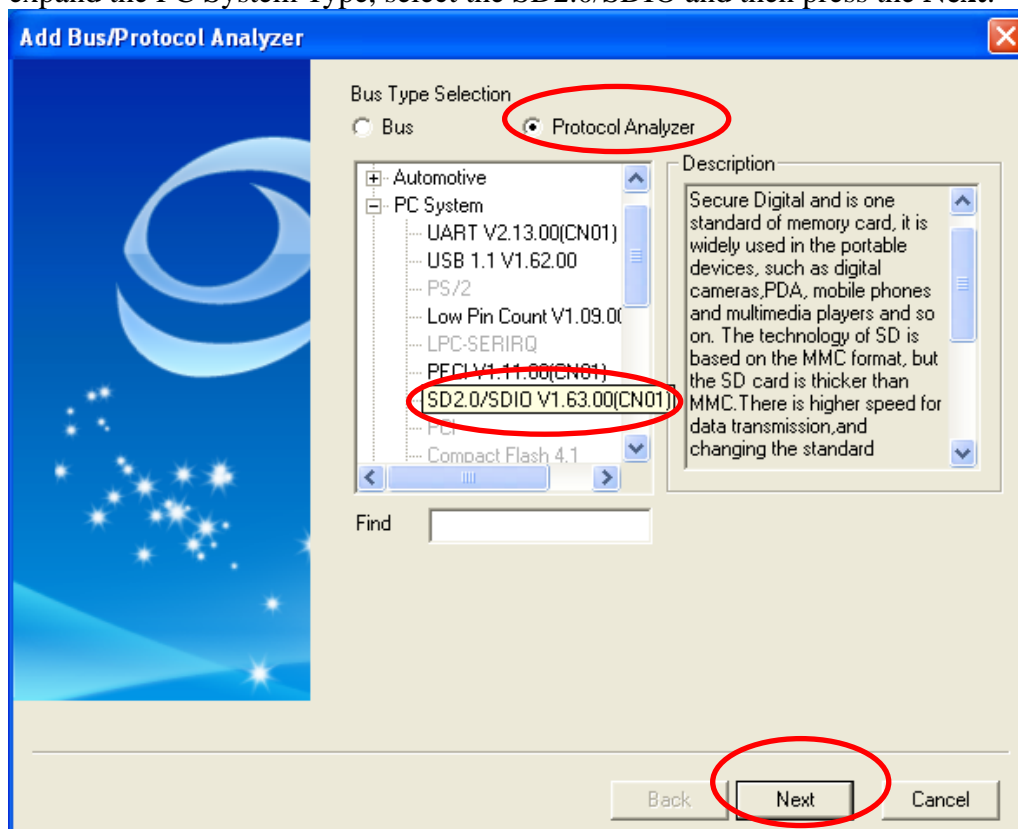


4 Operating Instructions

STEP 1. Select the **Add Bus/Protocol Analyzer** item on the pull-down menu of the **Sampling(S)** to open the **Add Bus/Protocol Analyzer** dialog box.

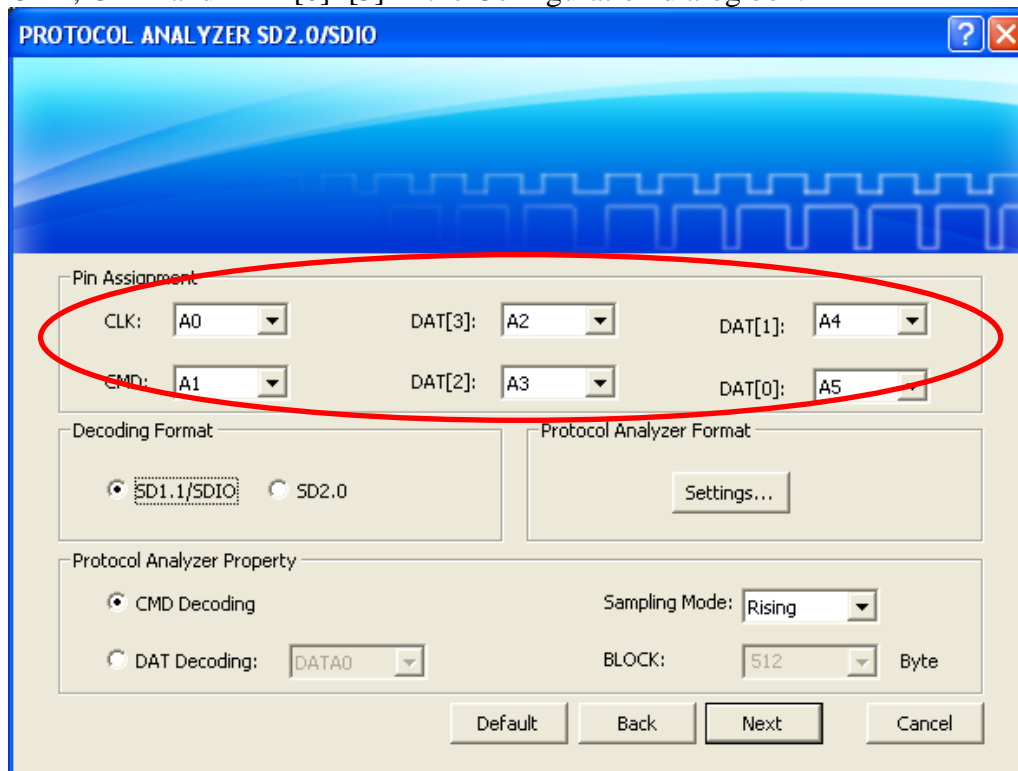


STEP 2. Select the Protocol Analyzer item in the Add Bus/Protocol Analyzer dialog box, expand the PC System Type, select the SD2.0/SDIO and then press the **Next**.

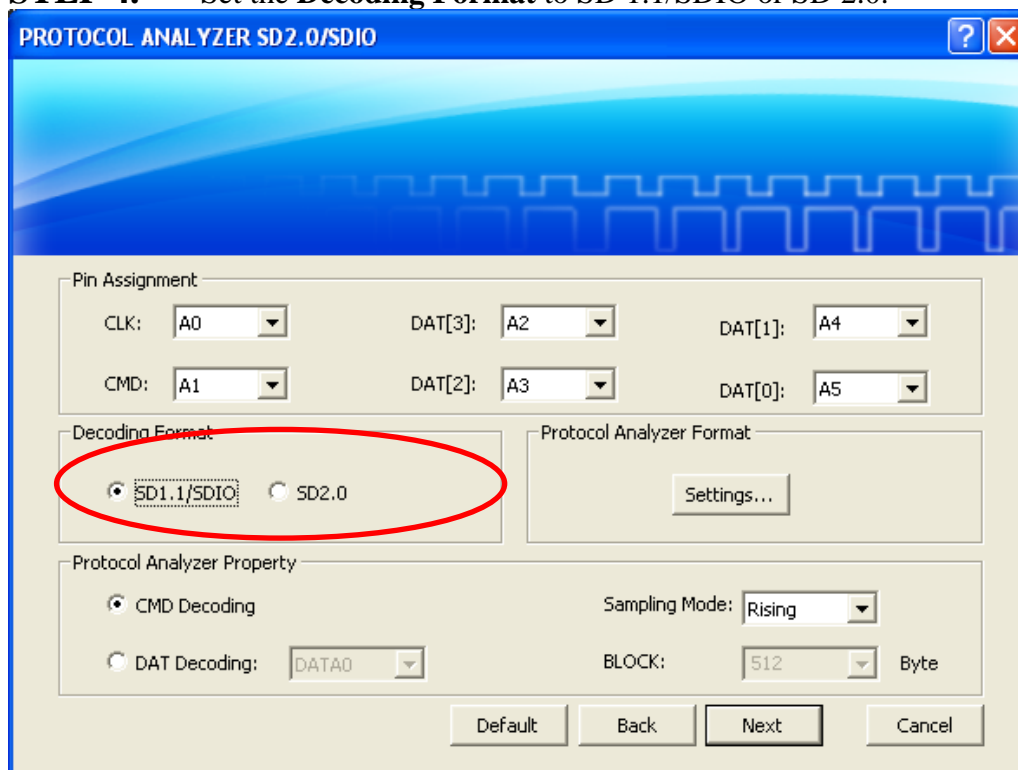




STEP 3. Open the PROTOCOL ANALYZER SD2.0/SDIO dialog box and set the channels of CLK, CMD and DAT [0]~[3] in the Configuration dialog box.



STEP 4. Set the **Decoding Format** to SD 1.1/SDIO or SD 2.0.





STEP 5. Set the CMD Decoding or DAT Decoding.

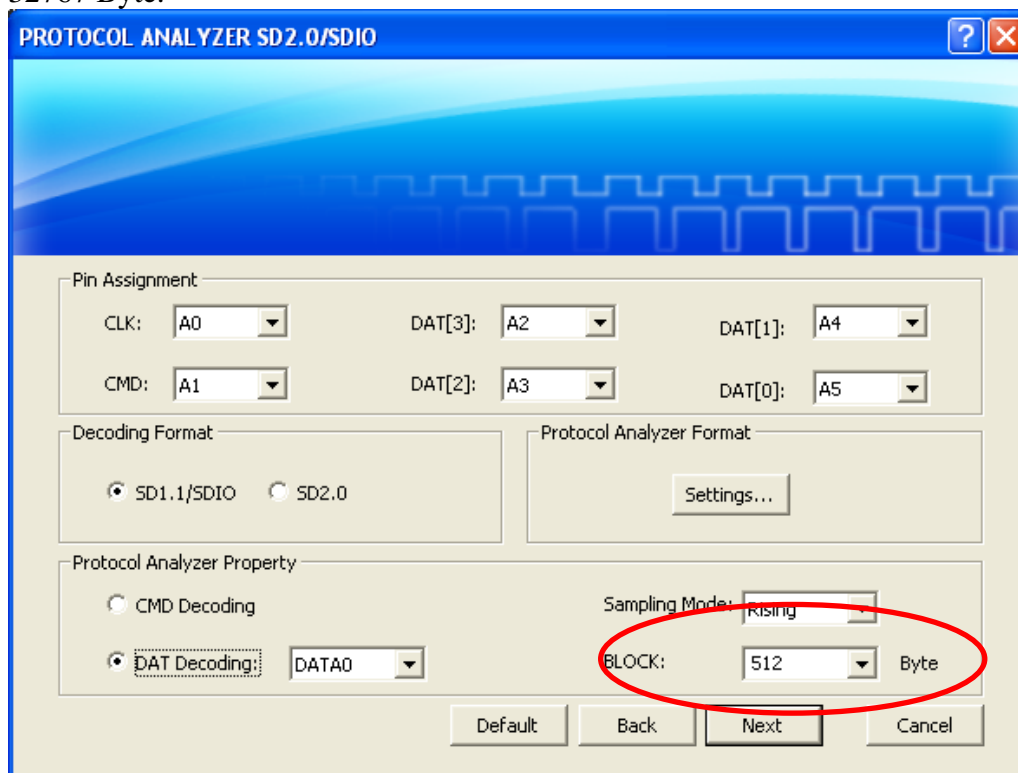
The screenshot shows the 'PROTOCOL ANALYZER SD2.0/SDIO' window. The 'Pin Assignment' section has CLK: A0, DAT[3]: A2, DAT[1]: A4, CMD: A1, DAT[2]: A3, and DAT[0]: A5. The 'Decoding Format' section has 'SD1.1/SDIO' selected. The 'Protocol Analyzer Property' section has 'CMD Decoding' selected and circled in red, with 'DAT Decoding' and 'DATA0' unselected. The 'Sampling Mode' is set to 'Rising', 'BLOCK' is '512', and 'Byte' is selected. Buttons at the bottom include Default, Back, Next, and Cancel.

STEP 6. Set the Sampling Mode to Rising or Falling.

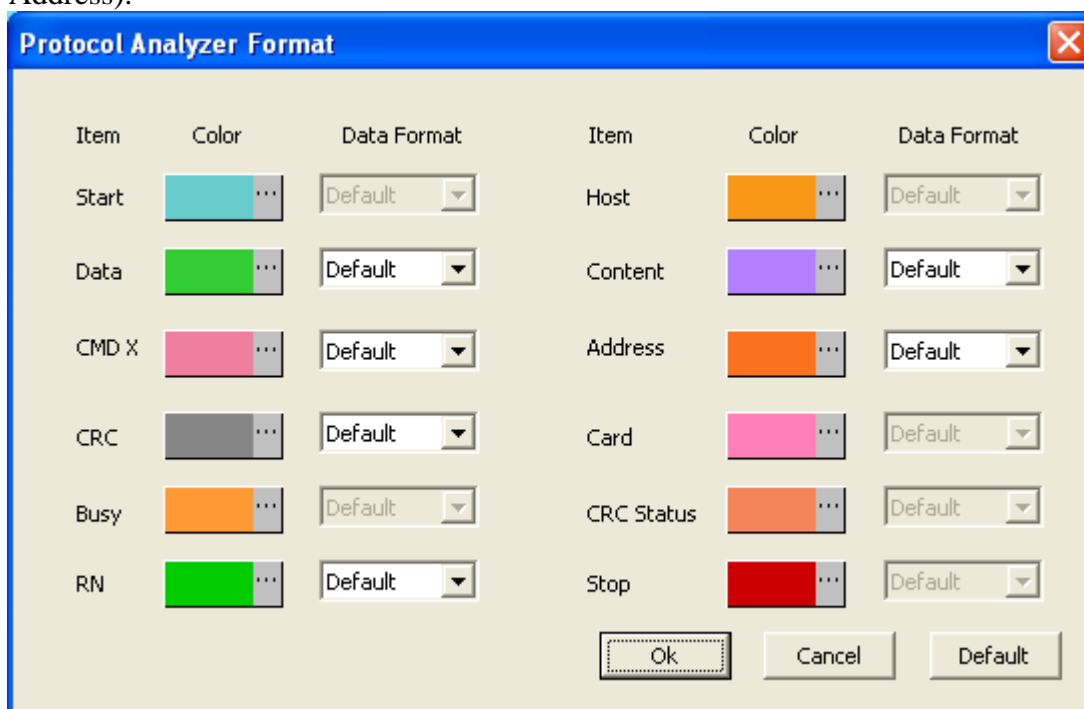
The screenshot shows the 'PROTOCOL ANALYZER SD2.0/SDIO' window. The 'Pin Assignment' section is the same as in Step 5. The 'Decoding Format' section has 'SD1.1/SDIO' selected. The 'Protocol Analyzer Property' section has 'CMD Decoding' selected. The 'Sampling Mode' is set to 'Rising' and circled in red. 'DAT Decoding' and 'DATA0' are unselected. 'BLOCK' is '512' and 'Byte' is selected. Buttons at the bottom include Default, Back, Next, and Cancel.



STEP 7. Select the **Data Decoding** to set the BLOCK Size in the range from 1 Byte to 32767 Byte.

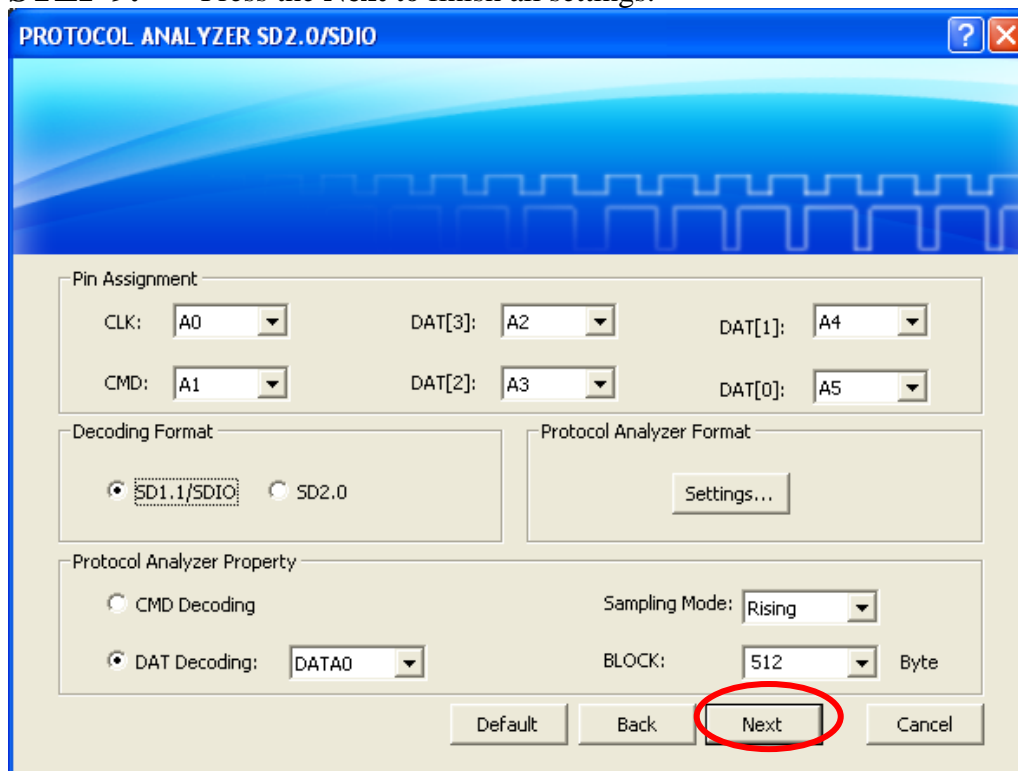


STEP 8. Press the **Settings** button to open the Protocol Analyzer Format dialog box, and then set the Color of each Item and the Data Format of the Items (Data, CMD X, CRC, RN, Content and Address).

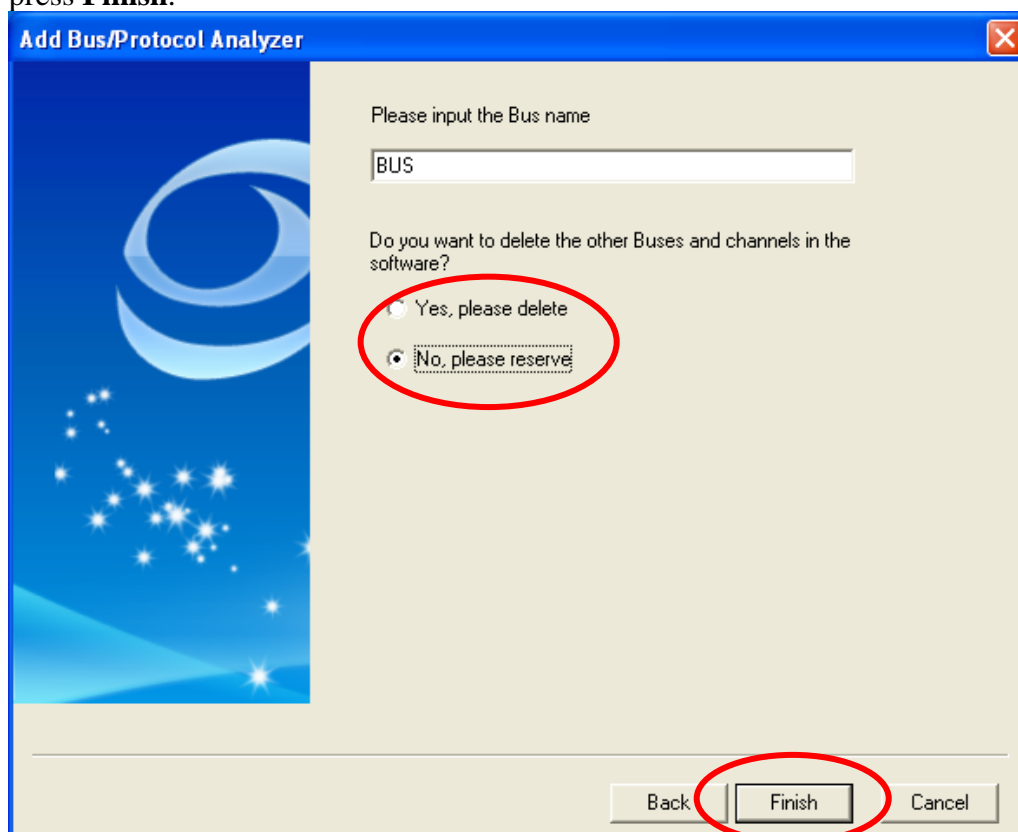




STEP 9. Press the **Next** to finish all settings.



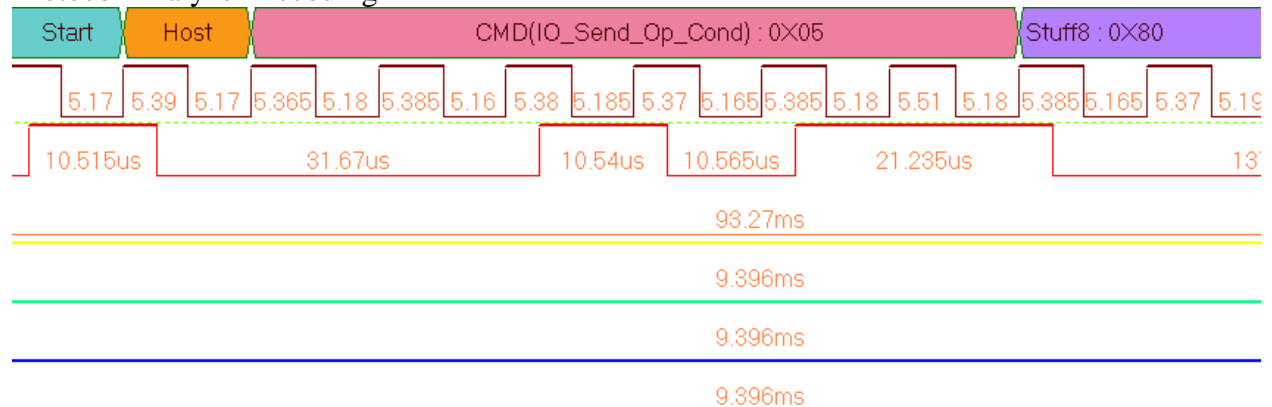
STEP 10. Please enter the Bus Name, select **Yes, please delete** or **No, please reserve** and then press **Finish**.





STEP 11. Following pictures show the completion of the protocol analyzer decoding and the packet list. The trigger condition is set as Either Edge; the memory depth is 128K; the sampling frequency is 200MHz (the sampling frequency should be more than four times higher than the signal to be tested).

Protocol Analyzer Decoding



Packet List

Packet List

Navigator											
Packet List			Statistics		Memory Analyzer						
Setting... Refresh Export... Synch. Parameter...											
Packet #	Name	TimeStamp	Start	Host	CMD(IO_Send_OP_Cond)	Stuff8	I/O OCR	CRC7	Stop		
1	Bus1(SD2.0/SDIO)	1.05321ms	Start	Host	05	80	022020	28	Stop		
Packet #	Name	TimeStamp	Start	Card	R5	Number Of I/O Functions	Memory Present	Stuff3	I/O OCR	CRC7	Stop
2	Bus1(SD2.0/SDIO)	2.60311ms	Start	Card	05	0	0	0	001020	6C	Stop
Packet #	Name	TimeStamp	Start	Host	CMD(IO_RW_Direct)	R/W Flag	Function Number	RAW Flag	Stuff1		
3	Bus1(SD2.0/SDIO)	4.15302ms	Start	Host	34	1	0	0	0		
Register Address			Stuff1	Write Data Or Stuff Bits			CRC7	Stop			
00111			0	00			49	Stop			
Packet #	Name	TimeStamp	Start	Card	R52	Stuff16	Response Flags Bit	Read Or Write Data	CRC7	Stop	
4	Bus1(SD2.0/SDIO)	5.70294ms	Start	Card	34	0000	10	00	1B	Stop	